

## CLAIM(S):

1. A system for guiding a vehicle along at least one guiding rail, having a rolling surface and which at least one side surface that constitutes a guiding surface, of the type which has a guiding roller device configured to cooperate with said rolling surface and said side surface and having a rolling bearing part intended for being in rolling contact by its peripheral surface with the upper rolling surface of the rail, and at least one side part capable of coming into contact with the side surface of the rail facing it, characterized by the fact that the rolling part and the side part are rotationally connected and configured such that the side part is in pin-point contact with the rail and has, at its point of contact (54) with rail (2), the same speed as central part (24) at the site of its rolling surface on rail (2).

2. A system according to Claim 1, characterized by the fact that roller device (1) has at least one rolling support roller (24) and at least one side roller (25, 26) forming said side part and of which the diameter and shape of side surface (51, 52) intended for coming into contact with rail (2) are chosen such that the side roller, at its point of contact (54) with rail (2), has the same speed as central support roller (24) at the site of its rolling surface on the rail.

3. A guiding system according to Claim 2, characterized by the fact that it is guided along two parallel guiding rails, of which the exterior side surfaces constitute the guiding surfaces, characterized by the fact that it has a support roller and a side roller for each guiding rail.

4. A system for guiding a vehicle along a guiding rail, according to Claim 2, characterized by the fact that the roller device has three rollers, a central roller and two side rollers (25, 26) forming said side parts and of which the diameter and the shape of side surface (51, 52) intended for coming into contact with rail (2) are chosen such that the side rollers, at their point of contact (54) with rail (2), have the same speed as central support roller (24) at the site of its rolling surface on the rail.

5. A system according to one of Claims 2 to 4, characterized by the fact that areas of contact (51, 52) of side rollers (25, 26) have, in radial section, a convex profile, advantageously an arc shape, and by the fact that contact surfaces (46, 47) of the rail are essentially planar.

6. A system according to Claim 4 or 5, characterized by the fact that side roller (25, 26) is rotationally synchronized with central roller (24).

7. A system according to Claim 4 or 6, characterized by the fact that the means of synchronization of the rotation speed of side roller (25, 26) with the rotation speed of central roller (24) comprises teeth (56, 57) associated respectively with side roller (25) and with central roller (24), which mesh with one another.

8. A system according to Claim 7, characterized by the fact that a set of teeth is mounted on its support by a means allowing sliding between the teeth and the support when a relative force exceeding a predetermined threshold is exceeded.

9. A system according to Claim 6, characterized by the fact that the means of synchronization of the rotation speed of side roller (25, 26) with the rotation speed of central roller (24) is the type with belts (82, 88) and pulleys (83, 86).

10. A system according to Claim 6, characterized by the fact that the means of synchronization of the rotation speed of side roller (129, 130) with the rotation speed of central roller (128) comprises ring (153) made out of a nondeformable solid material that comes in contact with bearing surface (154) of the central roller so as to ensure the rotation of the side roller by friction with the central roller.

11. A system according to Claim 10, characterized by the fact that central roller (128) is formed by a ring rotating freely and maintained by support device (137) connected with support shaft (133).

12. A system according to Claim 10, characterized by the fact that support device (137) comprises rollers (143, 144) for support of ring (128) that come into rolling contact with internal annular surface (145, 146) of the ring.

13. A system according to Claim 1, characterized by the fact that it has two rollers (167, 168), each of which has radial external part (170) intended for coming into contact with a side surface of head (42) of rail (2) and radial internal part (171) intended for coming into contact with the upper surface of the rail head, the two rollers being arranged in a V-shaped configuration.

14. A system according to Claim 13, characterized by the fact that the system has two rollers (177, 178), each of which has radial external part (180) intended for coming into contact with a side surface of head (42) of rail (2) and radial internal part (181) intended for coming into contact with the upper surface of the rail head, the two rollers being arranged in a V-shaped configuration, and by the fact that one of the rollers (178) has peripheral ring (183) intended for coming into contact with annular surface (184) of the other roller (177) so as to ensure the rotation of roller (178) by friction with roller (177).